

Frontiers in Synchrotron Research on Soft Matter and Biomaterials Workshop

April 24 - 27, 2002

A workshop on "Frontiers in Synchrotron Research on Soft Matter and Biomaterials" was held from April 24-27 at the Mary Duke Biddle Estate in Tarrytown, NY. The workshop was co-organized by John Flanagan (BNL Biology), Ben Ocko (BNL Physics), and Ron Pindak (NSLS). Seventy-seven attendees from government, university, and industrial labs met at this magnificent site overlooking the Hudson River.

The workshop participants related exciting advances and identified open issues in a number of soft matter and biomaterials research areas including: phase transitions in confined geometries and at surfaces, directed self-assembly of soft matter systems into functional nano-structures, controlled inorganic growth in an organic matrix, new behavior in complexes such as those formed by lipids and proteins or liquid-crystals and polymers, and the dynamics of protein-folding.

The measurements described in these presentations were mainly carried out at the NSLS and SSRL synchrotrons. Measurements carried out at the APS and the ESRF synchrotrons were also presented. The lat-

ter measurements focused on the application of radiation from high brightness sources to study dynamics such as membrane fluctuations and polymer reptations.

In order for all the synchrotron facilities to more effectively impact these problems, the participants indicated that faster detectors with energy resolution, flexible geometry, and wide dynamic range were essential, that barriers needed to be reduced to improve the accessibility of synchrotrons to new users, that better on-site facilities were required for sample preparation, and that existing information on mitigating radiation damage needed to be assembled into a report.

Finally, a glimpse into potential new superconducting undulator insertion devices and energy-recovery schemes for high-brightness x-ray sources was provided. The interactions between the soft matter and biomaterials researchers were lively and productive in nature. A follow-up meeting to track progress and further encourage cooperative ventures is under consideration.

- Ronald Pindak



Workshop Participants